

Carbohydrate Research 275 (1995) C3-C4

Author index

Abe, Y. 9 Al-Masoudi, N.A. 95 Albers, K.E. 49 Albersheim, P. 295 Aoki, N. 17 Apperley, D.C. 131 Arai, N. 17

Bakx, E.J. 343 Belogortseva, N.I. 193 Benazza, M. 421 Bernabé, M. 285 Bombard, S. 433 Brisson, J.-R. 333 Brockhausen, I. 403 Bundle, D.R. 381

Cabaret, D. 25 Capmau, M.-L. 433 Cescutti, P. 371 Choo, C.G. 49 Crépeau, M.-J. 155

Darvill, A.G. 295 Demailly, G. 421 Desai, U.R. 391 Du, Y. 259, 413

Evtushenko, E.V. 193

Fett, W.F. 371 Flari, V. 207 Flippen-Anderson, J.L. 117 Fraser, W. 275 Fujiwara, M. 9 Furuhata, K. 17

Geoffroy, M. 245 Gil-Serrano, A.M. 285 Gleason, W.B. 49 González-Jiménez, I. 285 Gorshkova, R.P. 147 Grabber, J.H. 167 Greven, R. 83 Grey, A.A. 221

Hahn, M.G. 295 Harata, K. 9 Hatfield, R.D. 167 Hayashi, K. 67 Hindsgaul, O. 381 Hizukuri, S. 361 Honda, Y. 215

Inoue, S. 185 Inoue, Y. 185 Ishida, H. 17 Ivanova, E.P. 147

Jain, R.K. 231 Jarvis, M.C. 131 Jeffrey, G.A. 25 Jennings, H.J. 333 Jiménez-Barbero, J. 285 Jindrich, J. 1 Jütten, P. 83

Kasper, D.L. 333 Kato, K. 319 Kitajima, K. 185 Knirel, Y.A. 147, 201 Kong, F. 259, 413 Kováč, P. 117, 295 Kuwahara, M. 215 Kuzuhara, H. 33

Landry, D.W. 179 Lei, P. 117 Li, P. 179 Limberg, G. 107 Lindberg, B. 1 Linhardt, R.J. 391

Maillet, M. 433
Massoui, M. 421
Matoub, M. 207
Matsue, R. 215
Matta, K.L. 231
Megías, M. 285
Meinjohanns, E. 221
Mikheyskaya, L.V. 193
Mischnick, P. 309
Muto, Y. 185
Myllärinen, P. 361

Nagata, T. 67 Nakamura, S. 17 Nazarenko, E.L. 147 Niimi, T. 185 Nunome, T. 319

Ogawa, Y. 117 Ohbu, K. 9 Ojala, W.H. 49 Osman, S.F. 371 Otter, A. 381 Ovodov, Y.S. 147, 193 Ovodova, R.G. 193

Paramonov, N.A. 147 Paulsen, H. 221, 403 Pavliak, V. 333 Pervin, A. 391 Pfleiderer, W. 95 Piskorz, C.F. 231 Pitha, J. 1

Ralph, J. 167 Reck, F. 221, 403 Renard, C.M.G.C. 155 Romero-Vázquez, M.J. 285 Rouland, C. 207

Saegusa, Y. 17 Saenger, W. 73 Sakairi, N. 33 Sakamoto, M. 17 Schachter, H. 221, 403 Scharf, H.-D. 83 Schols, H.A. 343 Schulman, A.H. 361 Schwalbe, C.H. 275 Shashkov, A.S. 147, 201 Sidorczyk, Z. 201 Sone, Y. 319 Springer, M. 403 Steffan, W. 295 Steiner, T. 73 Sun, L. 179 Suzuki, A. 361 Suzuki, S. 17 Swierzko, A. 201

Taguchi, T. 185
Tan, J. 221
Tariq, M.A. 67
Tejero Mateo, P. 285
Thibault, J.-F. 155
Thiem, J. 107
Tokuyasu, K. 67
Tomooka, S. 361
Tronchet, J.M.J. 245
Tzianabos, A.O. 333

Uhrín, D. 333 Uzan, R. 421

Vierhuis, E. 343 Vinogradov, E.V. 201 Vlahov, I.R. 391 Voragen, A.G.J. 343

Wakselman, M. 25 Wang, L.-X. 33 Watanabe, T. 215 Weisleder, D. 371 Wilke, O. 309 Wingert, L.M. 25 Worthington, V.L. 275

Yamamoto, Y. 319 Yamauchi, R. 319 Yokoyama, S. 185

Zhao, K. 179 Zsély, M. 245 Zubkov, V.A. 147 Carbohydrate Research 275 (1995) C5-C11

Subject index

β -(1 \rightarrow 2)-N-Acetylglucosaminyltransferase II

Synthesis of pentasaccharide analogues of the N-glycan substrates of N-acetylglucosaminyl-transferases III, IV and V using tetrasaccharide precursors and recombinant β - $(1 \rightarrow 2)$ -N-acetylglucosaminyltransferase II 221

N-Acetylglucosaminyltransferase II

Synthese von modifizierten Tetrasacchariden als analoge Akzeptor-Inhibitoren der N-Acetylglucosaminyltransferase II 403

N-Acetylglucosaminyltransferases

Synthesis of pentasaccharide analogues of the N-glycan substrates of N-acetylglucosaminyl-transferases III, IV and V using tetrasaccharide precursors and recombinant β - $(1 \rightarrow 2)$ -N-acetylglucosaminyltransferase II 221

Acidic exopolysaccharide structure

The structure of the acidic exopolysaccharide produced by *Pseudomonas* "gingeri" strain Pf9 371

Acylation

Differential activities of a lipase and a protease toward straight- and branched-chain acyl donors in transesterification to carbohydrates in an organic medium 215

Acylglycoside

Crystal structures of methyl 6-O-acyl- α -D-galactopyranosides 9

Affinity chromatography

Isolation and characterization of a new β -galactose-specific lectin from the sea worm Chaetopterus variopedatus 193

Alditols

Regioselective chlorination study of unprotected pentitols: syntheses of some 1,5-dichloro-1,5-dideoxypentitol derivatives 421

Aldono-1,4-lactones

β-Elimination of protected aldono-1,4-lactones as a general approach to the synthesis of 2-keto-3-deoxyaldonic acids containing four to six carbon atoms 107

5-Alkyl- and 5-halo-pyrimidines

Synthesis and reactions of 1-(5-azido-5-deoxy-3-*O-p*-toluenesulfonyl-β-D-xylofuranosyl) derivatives of 5-alkyl- and 5-halo-pyrimidines 95

Alteromonas

Structure of the capsular polysaccharide from Alteromonas sp. CMM 155 147

Amylopectin

Structural analysis of starch from normal and shx (shrunken endosperm) barley (Hordeum vulgare L.) 361

Amylose

Structural analysis of starch from normal and shx (shrunken endosperm) barley (Hordeum vulgare L.) 361

2',3'-Anhydronucleosides

Synthesis and reactions of 1-(5-azido-5-deoxy-3-O-p-toluenesulfonyl- β -D-xylofuranosyl) derivatives of 5-alkyl- and 5-halo-pyrimidines 95

Antibiotics

Stereoselective synthesis of L-vancosamine methyl β -glycoside by addition of an organocerium reagent to O-benzyloxime ethers 83

Antibody

Characterization of a monoclonal antibody that recognizes an arabinosylated $(1 \rightarrow 6)$ - β -D-galactan epitope in plant complex carbohydrates 295

O-Antigen

The structure of the O-specific polysaccharide chain of *Proteus penneri* strain 42 lipopolysaccharide 201

Structural analysis of the O-antigen of the lipopolysaccharide of *Rhizobium tropici* CIAT899 285

Antigenic determinant

Synthesis and crystal structure of methyl 4,6-dideoxy-4-(3-deoxy-L-glycero-tetronamido)- 2-O-methyl- α -D-mannopyranoside, the methyl α -glycoside of the terminal unit, and presumed

antigenic determinant, of the O-specific polysaccharide of *Vibrio cholerae* O:1, serotype Ogawa 117

Apple

Different populations of pectic hairy regions occur in apple cell walls 343

Arabinogalactan

Characterization of a monoclonal antibody that recognizes an arabinosylated $(1 \rightarrow 6)$ - β -D-galactan epitope in plant complex carbohydrates 295

Average solution conformation

Conformational analysis of sucrose octasulfate by high resolution nuclear magnetic resonance spectroscopy 391

5'-Azido-5'-deoxyxylonucleosides

Synthesis and reactions of 1-(5-azido-5-deoxy-3-O-p-toluenesulfonyl- β -D-xylofuranosyl) derivatives of 5-alkyl- and 5-halo-pyrimidines 95

Bacterial polysaccharides

The structure of the O-specific polysaccharide chain of *Proteus penneri* strain 42 lipopolysaccharide 201

Bacteroides fragilis

Structural elucidation of the capsular polysaccharide of *Bacteroides fragilis* strain 23745M1 333

Barley

Structural analysis of starch from normal and shx (shrunken endosperm) barley (Hordeum vulgare L.) 361

Branched-chain amino sugars

Stereoselective synthesis of L-vancosamine methyl β -glycoside by addition of an organocerium reagent to O-benzyloxime ethers 83

Calcium

Chain conformation in concentrated pectic gels: evidence from ¹³C NMR 131

Capsular polysaccharide

Structure of the capsular polysaccharide from Alteromonas sp. CMM 155 147

Carafate

Conformational analysis of sucrose octasulfate by high resolution nuclear magnetic resonance spectroscopy 391

Carbohydrate-binding protein

Isolation and characterization of a new β -galactose-specific lectin from the sea worm *Chaetopterus variopedatus* 193

Cationic starch

Analysis of cationic starches: determination of the substitution pattern of *O*-(2-hydroxy-3-trimethylammonium)propyl ethers 309

Cellobiose phosphorylase

Synthesis and structural analysis of disaccharides of 4-O- β -D-glucopyranosyl-D-glucosamine and 4-O- β -glucopyranosyl-2-deoxy-D-glucose 67

Cellvibrio gilvus

Synthesis and structural analysis of disaccharides of 4-O- β -D-glucopyranosyl-D-glucosamine and 4-O- β -glucopyranosyl-2-deoxy-D-glucose 67

Chaetopterus variopedatus

Isolation and characterization of a new β -galactose-specific lectin from the sea worm Chaetopterus variopedatus 193

¹³C-labeling

Lignin-ferulate cross-links in grasses: active incorporation of ferulate polysaccharide esters into ryegrass lignins 167

13C NMR

Synthetic mucin fragments: synthesis of O-sulfo and O-methyl derivatives of allyl O-(β -D-galactopyranosyl)-(1 \rightarrow 3)-2-acetamido-2-de-oxy- α -D-galactopyranoside as potential compounds for sulfotransferases 231

13C NMR of pentaantennary glycan

Complete assignments of ¹³C NMR resonances to all the carbon atoms of the trimannosido-di-N-acetylchitobiosyl structure in a pentaantennary decasaccharide glycopeptide 185

Conformation

Chain conformation in concentrated pectic gels: evidence from ¹³C NMR 131

Synthesis, conformation and glycosylation reaction of substituted 2,6-dioxabicyclo[3.1.1]-heptanes: 1,3-anhydro-2,4-di-O-benzyl- α -L-arabinopyranose 259

The N-7 regioisomer of 2-chloro-2'-deoxyadenosine: synthesis, crystal structure, conformation, and stability 275

Crystal structure

Crystal structure of anhydrous heptakis-(2,6-di-O-methyl)cyclomaltoheptaose (dimethyl- β -cyclodextrin) 73

Cyclodehydration

Regioselective chlorination study of unprotected pentitols: syntheses of some 1,5-dichloro-1,5-dideoxypentitol derivatives 421

β-Cyclodextrin

Crystal structure of anhydrous heptakis-(2,6-di-O-methyl)cyclomaltoheptaose (dimethyl-βcyclodextrin) 73

Cyclodextrins

Separation of cyclodextrins and their derivatives by thin-layer and preparative column chromatography 1

3',5'-Diazido-3',5'-dideoxyribonucleosides

Synthesis and reactions of 1-(5-azido-5-deoxy-3-O-p-toluenesulfonyl- β -D-xylofuranosyl) derivatives of 5-alkyl- and 5-halo-pyrimidines 95

Dihedral angles

Conformational analysis of sucrose octasulfate by high resolution nuclear magnetic resonance spectroscopy 391

Dimethyl-B-cyclodextrin

Crystal structure of anhydrous heptakis-(2,6-di-O-methyl)cyclomaltoheptaose (dimethyl-βcyclodextrin) 73

2,6-Dioxabicyclo[3.1.1]heptanes

Synthesis, conformation and glycosylation reaction of substituted 2,6-dioxabicyclo[3.1.1]-heptanes: 1,3-anhydro-2,4-di-*O*-benzyl-α-L-arabinopyranose 259

2,7-Dioxabicyclo[4.1.0]heptanes

Synthesis and unusual glycosidic coupling reaction of substituted 2,7-dioxabicyclo[4.1.0]-heptanes: 1,2-anhydro-3,4-di-*O*-benzyl-α-D-fucopyranose 413

2D NMR

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small 3J 381

Egg-box form

Chain conformation in concentrated pectic gels: evidence from ¹³C NMR 131

B-Elimination

 β -Elimination of protected aldono-1,4-lactones as a general approach to the synthesis of 2-keto-3-deoxyaldonic acids containing four to six carbon atoms 107

Enzymic degradation

Different populations of pectic hairy regions occur in apple cell walls 343

Epitope

Characterization of a monoclonal antibody that recognizes an arabinosylated $(1 \rightarrow 6)$ - β -D-galactan epitope in plant complex carbohydrates 295

EPR spectroscopy

Spin-labelled glycolipid analogues: D-glucose series 245

Exocellular plysaccharide

Structure of an exocellular polysaccharide of Lactobacillus helveticus TN-4, a spontaneous mutant strain of Lactobacillus helveticus TY1-2 319

Extraction

Different populations of pectic hairy regions occur in apple cell walls 343

FAB mass spectroscopy

Synthetic mucin fragments: synthesis of O-sulfo and O-methyl derivatives of allyl O-(β -D-galactopyranosyl)-(1 \rightarrow 3)-2-acetamido-2-de-oxy- α -D-galactopyranoside as potential compounds for sulfotransferases 231

Ferrier's carbocylization

Synthesis of 1*D*-(1,3,5/2,4)-4-acetamido-5-amino-1,2,3- cyclohexanetriol and its incorporation into a pseudo-disaccharide 33

Ferulate polysaccharide esters

Lignin-ferulate cross-links in grasses: active incorporation of ferulate polysaccharide esters into ryegrass lignins 167

Fibroblast growth factor

Conformational analysis of sucrose octasulfate by high resolution nuclear magnetic resonance spectroscopy 391

(1 → 6)-β-D-Galactan

Characterization of a monoclonal antibody that recognizes an arabinosylated $(1 \rightarrow 6)$ - β -D-galactan epitope in plant complex carbohydrates 295

Galacturonan

Chain conformation in concentrated pectic gels: evidence from ¹³C NMR 131

Structure of the repeating units in the rhamnogalacturonic backbone of apple, beet and citrus pectins 155

Gal-specific lectin

Isolation and characterization of a new β -galactose-specific lectin from the sea worm Chaetopterus variopedatus 193

GCOSY

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small ³J 381

GDOF-COSY

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small ³J 381

4-O-β-D-Glucopyranosyl-2-deoxy-D-glucose

Synthesis and structural analysis of disaccharides of 4-O- β -D-glucopyranosyl-D-glucosamine and 4-O- β -glucopyranosyl-2-deoxy-D-glucose 67

4-O-β-D-Glucopyranosyl-D-glucosamine

Synthesis and structural analysis of disaccharides of 4-O- β -D-glucopyranosyl-D-glucosamine and 4-O- β -glucopyranosyl-2-deoxy-D-glucose 67

Glucosyltransferase inactivation

Inactivation of two D-glucosyltransferases from Serotype c *Streptococcus mutans* 103220T by 1,2-epoxy-3-(\alpha-D-glucopyranosyl)propane 433

N-Glycan substrates

Synthesis of pentasaccharide analogues of the N-glycan substrates of N-acetylglucosaminyltransferases III, IV and V using tetrasaccharide precursors and recombinant β - $(1 \rightarrow 2)$ -N-acetylglucosaminyltransferase II 221

N-Glycopeptide biosynthesis

Synthese von modifizierten Tetrasacchariden als analoge Akzeptor-Inhibitoren der N-Acetylglucosaminyltransferase II 403

Glycosaminoglycans

Carbohydrates with relevance to the structure of glycosaminoglycans: The crystal structures of 2-deoxy-2-(sulfoamino)- α -D-glucopyranose sodium salt dihydrate, 2-amino-2-deoxy- α , β -D-glucopyranose 3-(hydrogen sulfate) monohydrate, and 2-amino-2-deoxy- α -D-glucopyranose 6-(hydrogen sulfate) monohydrate 49

Glycosidase inhibitor

Synthesis of 1D-(1,3,5/2,4)-4-acetamido-5-amino-1,2,3- cyclohexanetriol and its incorporation into a pseudo-disaccharide 33

Glycosides

Spin-labelled glycolipid analogues: D-glucose series 245

Glycosidic coupling reaction

Synthesis and unusual glycosidic coupling reaction of substituted 2,7-dioxabicyclo[4.1.0]-heptanes: 1,2-anhydro-3,4-di-*O*-benzyl-α-D-fucopyranose 413

Glycosurfactant

Crystal structures of methyl 6-O-acyl-α-D-galactopyranosides 9

Glycosylation

Synthesis and reactions of 1-(5-azido-5-deoxy-3-O-p-toluenesulfonyl- β -D-xylofuranosyl) derivatives of 5-alkyl- and 5-halo-pyrimidines 95

Gradient-enhanced COSY

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small 3J 381

Gradient-enhanced double-quantum filtered COSY
Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing
manno-hexoses provide improved correlations
for protons coupled by small ³J 381

Gradient-enhanced TOCSY

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small 3J 381

GTOCSY

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small ³J 381

1H and 13C NMR

Structure of the repeating units in the rhamnogalacturonic backbone of apple, beet and citrus pectins 155

Helix lucorum

Purification and characterization of a β -mannanase from the digestive tract of the edible snail *Helix lucorum* L. 207

HMBC

Lignin-ferulate cross-links in grasses: active incorporation of ferulate polysaccharide esters into ryegrass lignins 167

Hydrogen bonding

Crystal structure of anhydrous heptakis-(2,6-di-O-methyl)cyclomaltoheptaose (dimethyl- β -cyclodextrin) 73

Iminium salts

Regioselective chlorination study of unprotected pentitols: syntheses of some 1,5-dichloro-1,5-dideoxypentitol derivatives 421

Karplus equation

Conformational analysis of sucrose octasulfate by high resolution nuclear magnetic resonance spectroscopy 391

Ketodeoxyaldonic acids

β-Elimination of protected aldono-1,4-lactones as a general approach to the synthesis of 2-keto-3-deoxyaldonic acids containing four to six carbon atoms 107

Lactobacillus helveticus TN-4

Structure of an exocellular polysaccharide of *Lactobacillus helveticus* TN-4, a spontaneous mutant strain of *Lactobacillus helveticus* TY1-2 319

Lactobacillus helveticus TY1-2

Structure of an exocellular polysaccharide of *Lactobacillus helveticus* TN-4, a spontaneous mutant strain of *Lactobacillus helveticus* TY1-2 319

Lignin-ferulate cross-links

Lignin-ferulate cross-links in grasses: active incorporation of ferulate polysaccharide esters into ryegrass lignins 167

Lipases

Differential activities of a lipase and a protease toward straight- and branched-chain acyl donors in transesterification to carbohydrates in an organic medium 215

Lipopolysaccharide

The structure of the O-specific polysaccharide chain of *Proteus penneri* strain 42 lipopolysaccharide 201

Structural analysis of the O-antigen of the lipopolysaccharide of *Rhizobium tropici* CIAT899 285

Liquid-crystal properties

Liquid-crystal properties of octyl 6'-O-alkylmelibiosides 25

B-Mannanase

Purification and characterization of a β -mannanase from the digestive tract of the edible snail *Helix lucorum* L. 207

α-D-Mannopyranoside, methyl 4,6-dideoxy-4-(3-deoxy-L-glycero-tetronamido)-2-O-methyl Synthesis and crystal structure of methyl 4,6-dideoxy-4-(3-deoxy-L-glycero-tetronamido)- 2-O-methyl-α-D-mannopyranoside, the methyl α-glycoside of the terminal unit, and presumed antigenic determinant, of the O-specific polysaccharide of Vibrio cholerae O:1, serotype Ogawa 117

Mannose

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small ³J 381

Modified tetrasaccharide substrates

Synthese von modifizierten Tetrasacchariden als analoge Akzeptor-Inhibitoren der N-Acetylglucosaminyltransferase II 403

Monoclonal

Characterization of a monoclonal antibody that recognizes an arabinosylated $(1 \rightarrow 6)$ - β -D-galactan epitope in plant complex carbohydrates 295

Mucin fragments

Synthetic mucin fragments: synthesis of O-sulfo and O-methyl derivatives of allyl O-(β -D-galactopyranosyl)-(1 \rightarrow 3)-2-acetamido-2-de-oxy- α -D-galactopyranoside as potential compounds for sulfotransferases 231

Mushroom pathogen

The structure of the acidic exopolysaccharide produced by *Pseudomonas* "gingeri" strain Pf9 371

Mutant

Structural analysis of starch from normal and shx (shrunken endosperm) barley (Hordeum vulgare L.) 361

Neoglycolipids

Spin-labelled glycolipid analogues: D-glucose series 245

NMR

Synthesis and structural analysis of disaccharides of 4-O- β -D-glucopyranosyl-D-glucosamine and 4-O- β -glucopyranosyl-2-deoxy-D-glucose 67

Lignin-ferulate cross-links in grasses: active incorporation of ferulate polysaccharide esters into rvegrass lignins 167

Structural elucidation of the capsular polysaccharide of *Bacteroides fragilis* strain 23745M1 333

NMR spectroscopy

Structure of the capsular polysaccharide from Alteromonas sp. CMM 155 147

The structure of the O-specific polysaccharide chain of *Proteus penneri* strain 42 lipopolysaccharide 201

Conformational analysis of sucrose octasulfate by high resolution nuclear magnetic resonance spectroscopy 391

N-7 nucleoside

The N-7 regioisomer of 2-chloro-2'-deoxyadenosine: synthesis, crystal structure, conformation, and stability 275

NOE

The N-7 regioisomer of 2-chloro-2'-deoxyadenosine: synthesis, crystal structure, conformation, and stability 275

Nonionic surfactant

Crystal structures of methyl 6-O-acyl- α -D-galactopyranosides 9

Octyl 6'-O-alkylmelibiosides

Liquid-crystal properties of octyl 6'-O-alkylmelibiosides 25

Oligosaccharide

Structure of the capsular polysaccharide from Alteromonas sp. CMM 155 147

Organocerium reagents

Stereoselective synthesis of L-vancosamine methyl β -glycoside by addition of an organocerium reagent to O-benzyloxime ethers 83

Oxime ethers

Stereoselective synthesis of L-vancosamine methyl β -glycoside by addition of an organocerium reagent to O-benzyloxime ethers 83

Pectin

Chain conformation in concentrated pectic gels: evidence from ¹³C NMR 131

Structure of the repeating units in the rhamnogalacturonic backbone of apple, beet and citrus pectins 155

Different populations of pectic hairy regions occur in apple cell walls 343

Pentasaccharide analogues

Synthesis of pentasaccharide analogues of the N-glycan substrates of N-acetylglucosaminyl-transferases III, IV and V using tetrasaccharide precursors and recombinant β -(1 \rightarrow 2)-N-acetylglucosaminyltransferase II 221

Polysaccharide

Structural elucidation of the capsular polysaccharide of *Bacteroides fragilis* strain 23745M1 333

O-Polysaccharide

Synthesis and crystal structure of methyl 4,6-dideoxy-4-(3-deoxy-L-glycero-tetronamido)- 2-O-methyl- α -D-mannopyranoside, the methyl α -glycoside of the terminal unit, and presumed antigenic determinant, of the O-specific polysaccharide of *Vibrio cholerae* O:1, serotype Ogawa 117

Polysaccharide derivatives

Analysis of cationic starches: determination of the substitution pattern of *O*-(2-hydroxy-3-trimethylammonium)propyl ethers 309

Preparative column chromatography

Separation of cyclodextrins and their derivatives by thin-layer and preparative column chromatography 1

Proteases

Differential activities of a lipase and a protease toward straight- and branched-chain acyl donors in transesterification to carbohydrates in an organic medium 215

Proteus

The structure of the O-specific polysaccharide chain of *Proteus penneri* strain 42 lipopolysaccharide 201

Pseudo-aminosugar

Synthesis of 1*D*-(1,3,5/2,4)-4-acetamido-5-amino-1,2,3- cyclohexanetriol and its incorporation into a pseudo-disaccharide 33

Pseudomonas "gingeri" strain Pf9

The structure of the acidic exopolysaccharide produced by *Pseudomonas* "gingeri" strain Pf9 371

Regioselective chlorination

Regioselective chlorination study of unprotected pentitols: syntheses of some 1,5-dichloro-1,5-dideoxypentitol derivatives 421

Rhamnogalacturonan

Structure of the repeating units in the rhamnogalacturonic backbone of apple, beet and citrus pectins 155

Rhamnogalacturonase

Different populations of pectic hairy regions occur in apple cell walls 343

Rhamnose

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small ³J 381

Rhizobium tropici CIAT899

Structural analysis of the O-antigen of the lipopolysaccharide of *Rhizobium tropici* CIAT899 285

Ryegrass lignins

Lignin-ferulate cross-links in grasses: active incorporation of ferulate polysaccharide esters into ryegrass lignins 167

Selective

Differential activities of a lipase and a protease toward straight- and branched-chain acyl donors in transesterification to carbohydrates in an organic medium 215

Semi-empirical

The N-7 regioisomer of 2-chloro-2'-deoxyadenosine: synthesis, crystal structure, conformation, and stability 275

Serotype c Streptoccocus mutans

Inactivation of two D-glucosyltransferases from Serotype c *Streptococcus mutans* 103220T by 1,2-epoxy-3-(α -D-glucopyranosyl)propane 433

Small vicinal coupling constants

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small 3J 381

Snail

Purification and characterization of a β -mannanase from the digestive tract of the edible snail *Helix lucorum* L. 207

Soluble starch synthase

Structural analysis of starch from normal and shx (shrunken endosperm) barley (Hordeum vulgare L.) 361

Spin labels

Spin-labelled glycolipid analogues: D-glucose series 245

Spin-spin coupling

Gradient-enhanced homonuclear 2D NMR techniques applied to oligosaccharides containing manno-hexoses provide improved correlations for protons coupled by small 3J 381

Substitution pattern

Analysis of cationic starches: determination of the substitution pattern of *O*-(2-hydroxy-3-trimethylammonium)propyl ethers 309

Sucralfate

Conformational analysis of sucrose octasulfate by high resolution nuclear magnetic resonance spectroscopy 391

Sucrose octasulfate

Conformational analysis of sucrose octasulfate by high resolution nuclear magnetic resonance spectroscopy 391

Sulfotransferases

Synthetic mucin fragments: synthesis of O-sulfo and O-methyl derivatives of allyl O-(β -D-galactopyranosyl)-(1 \rightarrow 3)-2-acetamido-2-de-oxy- α -D-galactopyranoside as potential compounds for sulfotransferases 231

Synthesis

β-Elimination of protected aldono-1,4-lactones as a general approach to the synthesis of 2-keto-3-deoxyaldonic acids containing four to six carbon atoms 107

Synthesis and crystal structure of methyl 4,6-dideoxy-4-(3-deoxy-L-glycero-tetronamido)- 2-O-methyl- α -D-mannopyranoside, the methyl α -glycoside of the terminal unit, and presumed antigenic determinant, of the O-specific polysaccharide of *Vibrio cholerae* O:1, serotype Ogawa 117

Synthesis, conformation and glycosylation reaction of substituted 2,6-dioxabicyclo[3.1.1]-heptanes: 1,3-anhydro-2,4-di-*O*-benzyl-α-L-arabinopyranose 259

Synthesis and unusual glycosidic coupling reaction of substituted 2,7-dioxabicyclo[4.1.0]-heptanes: 1,2-anhydro-3,4-di-O-benzyl- α -D-fucopyranose 413

Thin-layer chromatography

Separation of cyclodextrins and their derivatives by thin-layer and preparative column chromatography 1

1-Thioglycosides

Synthesis of 1-thioglycosides 179

Transferase inhibitor

Synthese von modifizierten Tetrasacchariden als analoge Akzeptor-Inhibitoren der N-Acetylglucosaminyltransferase II 403

Trichloracetimidate glycosylation

Synthese von modifizierten Tetrasacchariden als analoge Akzeptor-Inhibitoren der N-Acetylglucosaminyltransferase II 403

Trimannosyl-di-N-acetylchitobiosyl structure

Complete assignments of ¹³C NMR resonances to all the carbon atoms of the trimannosido-di-N-acetylchitobiosyl structure in a pentaantennary decasaccharide glycopeptide 185

Unprotected pentitols

Regioselective chlorination study of unprotected pentitols: syntheses of some 1,5-dichloro-1,5-dideoxypentitol derivatives 421

Vancosamine

Stereoselective synthesis of L-vancosamine methyl β -glycoside by addition of an organocerium reagent to O-benzyloxime ethers 83

Vibrio cholerae O:1, serotype Ogawa

Synthesis and crystal structure of methyl 4,6-dideoxy-4-(3-deoxy-L-glycero-tetronamido)- 2-O-methyl- α -D-mannopyranoside, the methyl α -glycoside of the terminal unit, and presumed antigenic determinant, of the O-specific polysaccharide of *Vibrio cholerae* O:1, serotype Ogawa 117

Viehe-Janouseck's salt

Regioselective chlorination study of unprotected pentitols: syntheses of some 1,5-dichloro-1,5-dideoxypentitol derivatives 421

Vilsmeier-Haack's salt

Regioselective chlorination study of unprotected pentitols: syntheses of some 1,5-dichloro-1,5-dideoxypentitol derivatives 421

X-ray

Crystal structures of methyl 6-O-acyl- α -D-galactopyranosides 9

X-ray crystal structures

Carbohydrates with relevance to the structure of glycosaminoglycans: The crystal structures of 2-deoxy-2-(sulfoamino)- α -D-glucopyranose sodium salt dihydrate, 2-amino-2-deoxy- α , β -D-glucopyranose 3-(hydrogen sulfate) monohydrate, and 2-amino-2-deoxy- α -D-glucopyranose 6-(hydrogen sulfate) monohydrate 49

X-ray structure

The N-7 regioisomer of 2-chloro-2'-deoxyadenosine: synthesis, crystal structure, conformation, and stability 275